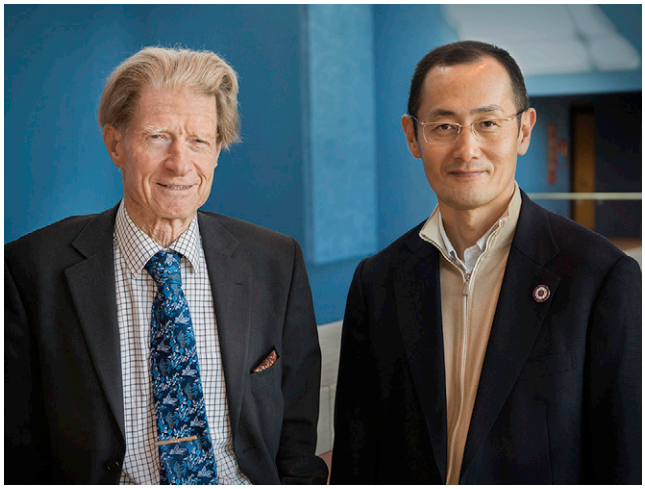
A Win for Stem Cells

The stem cell field has now had 2 months to digest the news that John Gurdon and Shinya Yamanaka won this year's Nobel Prize in Physiology or Medicine for their "discovery that mature cells can be reprogrammed to become pluripotent." Their prize will be awarded at the Nobel ceremony on December 10. We have chosen to mark the occasion in this December issue with three review section articles. Two are reflections from leaders in the field about the background to and impact of the work that garnered the prize. Azim Surani touches on both history and related topics to give a sense of overall context. Rudolf Jaenisch discusses the scientific impact and mixes in some insights into the personalities of the two winners. For the third article, a Voices piece, we asked 12 researchers who entered the field more recently to discuss an area that they think will be important in the future for the reprogramming field. Through their contributions, these "next generation" scientists highlight a broad range of issues related to future scientific investigation and therapeutic application. I hope you will find all three of these articles as enjoyable and thought-provoking as I do. Two of the research articles in this issue are also relevant to the reprogramming theme: new work from Jeff Wrana and colleagues delves into the mechanisms that underlie the reprogramming process and highlights factors that help mediate the transition from intermediate to stable pluripotency, and Iannis Aifantis and colleagues include investigation of reprogramming as part of a broader analysis of the role of the ubiquitin-proteasome system in the pluripotency network. To round off our feature, we chose a cover image that pays homage to both Alfred Nobel, the inventor of dynamite, and the explosive effect that the discovery of reprogramming to pluripotency has had on the stem cell field. For more on the topic of reprogramming beyond this issue, I would point you to the Perspective articles from Thomas Graf toward the end of last year (Graf, 2011) covering the research background that led to our current understanding of many types of reprogramming, and from Shinya Yamanaka in our June review issue reflecting on the past and future of the iPSC field (Yamanaka, 2012).

In his current article, Rudolf Jaenisch mentions the impact that Shinya Yamanaka's presentation had on the audience at the 2006 ISSCR Annual Meeting in Toronto. I was at that meeting as well, and I would agree that the excitement was high. Shinya had also presented the work earlier in the year at a Keystone meeting to a smaller audience and received a similar reaction, albeit one that was perhaps tinged with a little disbelief for some (how could it be that simple?). Subsequent work has of course underlined how robust the approach in fact is. I also remember learning about John Gurdon's work from John himself (before he became "Sir John" and had an institute named in his honor) while an undergraduate in Cambridge, UK. It was clear to all of the students how much he was driven by basic curiosity about science, a passion that is still very much in evidence today. I know I am far from alone in having been inspired by John and the other lecturers at Cambridge to pursue science as a career,



Sir John Gurdon (left) and Shinya Yamanaka (right) at the ISSCR-Roddenberry International Symposium on Cellular Reprogramming in October 2012. Photo courtesy of Gladstone Institute/Chris Goodfellow.

something I am always grateful for. I was therefore very happy to have the opportunity to congratulate both winners in person at the ISSCR-Roddenberry meeting in October this year, the first occasion that they were together since the announcement of the prize.

I do not think it is an exaggeration to say that the advent of direct reprogramming, in all its forms, has had a major impact on the rapid rise of the stem cell field over recent years. It is an interesting coincidence that 2006, the year that Shinya presented the work that kicked this area into high gear, is also the year that Cell Press decided to launch *Cell Stem Cell*, and the 2006 Annual Meeting is where the ISSCR decided to partner with *Cell Stem Cell* as its affiliated journal. The field has of course grown in many ways since then, and at *Cell Stem Cell* we are happy to have had the opportunity to publish important advances across the entire spectrum of stem cell research. This month, we are celebrating one aspect. I therefore hope you will join me and all of the *Cell Stem Cell* team in congratulating two of our community's own on their very well-deserved honor, and in looking forward to seeing how they and the many other researchers who now work in this area build on their findings for the benefit of humankind.

REFERENCES

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Editor, *Cell Stem Cell*
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